

SOME CLADONIAE FROM SOUTHWESTERN OHIO

CLADONIAE FROM CLERMONT, BROWN, AND ADAMS COUNTIES

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At the present time there are few published records for species of *Cladonia* in southwestern Ohio. Dr. Bruce Fink's many papers on *Cladonia* species include general distribution data rather than locality records, so that while he no doubt studied plants from the southwestern part of the state his published reports do not include such. Mr. Thomas G. Lea¹ listed a number of species but his records are from Hamilton County (Cincinnati) or Northern Kentucky and are not included in this report.

The present paper includes collections from Clermont, Brown and Adams Counties. They are east of Hamilton County (Cincinnati) in the order named, and all of them border on the Ohio River. Except for the hilly areas along the Ohio and its tributaries, Clermont and Brown Counties are mostly made up of poorly drained upland flats of glacial till, where pin oak, swamp white oak, and sweet gum are conspicuous trees. (Much of the area has been cleared and is now under cultivation.) Most of Adams County is unglaciated. It is primarily an area of high hills and narrow valleys. Limestones and shales are the principle underlying rocks though sandstone is occasionally found at the tops of some of the higher ridges. The forests are prevailing of the deciduous type though occasional pine areas occur.

The *Cladonias* are most abundant in old abandoned fields in both Clermont and Brown Counties; in Adams County they occur in great abundance along old wagon roads, in open pine woods, and on ridge tops, as well as in the grassy meadows.

The writer wishes to express her sincere appreciation in acknowledgment of the kindness of Dr. A. W. Evans, of Yale University, who has determined the material, and given helpful criticism in the preparation of this paper. Some of the speci-

¹Lea, Thos. G. Catalogue of the plants, native and naturalized, collected in the vicinity of Cincinnati, Ohio, during the years 1834-1844, by Thos. G. Lea, Philadelphia, 1849.

mens were sent by Dr. Evans to Dr. Sandstede, of Bad Zwischenahan, Oldenburg, and his determinations and comments are noted under the specimens in question.

The specimens in the list which follows are arranged according to the classification of Vainio² which has been adopted by most of the recent writers on *Cladonia*. Unless otherwise noted the specimens were collected by the writer. The specimens are in the herbarium of Yale University, with a duplicate set in the herbarium of the University of Cincinnati.

Subgenus *Cladina*

Cladonia rangiferina (L.) Web. On earth in fields. The species is rare in the southwestern part of the state, and most of the specimens which have been locally referred to this species, are found, on examination, to be *C. tenuis*, which is very common. The only known station contains four or five clumps six to eight inches in diameter. Brown Co.: Quinn School near Vera Cruz.

Cladonia tenuis (Floerke) Harm. On soil in open woods and fields. This is the only abundant species of the subgenus *Cladina* in southwestern Ohio. Adams Co.: Beaver Pond; Lynx. Brown Co.: Quinn School near Vera Cruz; Vera Cruz (Miss Braun).

Cladonia tenuis f. *setigera* Sandst. Adams Co.: Mineral Springs. Brown Co.: Quinn School near Vera Cruz. Clermont Co.: Nicholasville (Miss Braun).

Subgenus *Pycnothelia*

Cladonia papillaria (Ehrh.) Hoffm. On clay soil, banks, hillsides, and open fields. Not common. The species is represented by the three forms listed below.

Cladonia papillaria f. *molariformis* (Hoffm.) Schaer. Adams Co.: near Beaver Pond; Mineral Springs. Brown Co.: Quinn School near Vera Cruz (Dowd).

Cladonia papillaria f. *papillosa* Fr. Adams Co.: Mineral Springs.

Cladonia papillaria f. *prolifera* (Wallr.) Schaer. Adams Co.: Beaver Pond.

Subgenus *Cenomyce*

Section 1. *Cocciferae*

Subsection 1. *Subglaucesscentes*

Cladonia bacillaris (Ach.) Nyl. On decaying logs and stumps. Not frequent. Adams Co.: Beaver Pond; Mineral Springs. Brown Co.: Quinn School near Vera Cruz.

Cladonia didyma (Fée) Vainio. On dry, decaying logs. Not

²Vainio, E. *Monographia Cladoniarum universalis*. Pars prima. Acta Soc. Fauna et Flora Fennica 4: 1-510. 1887. Pars secunda. Ibid. 10: 1-499. 1894. Pars tertia. Ibid. 14: 1-268. 1897.

common. Adams Co.: Mineral Springs. Dr. Evans says of this specimen that it is probably the form *subacuta* but that it is not distinctive.

Cladonia didyma f. *squamulosa* Robbins. Adams Co.: Mineral Springs.

Subsection 2. **Stramineo-flavidae**

Cladonia cristatella Tuck. On old wood, bases of trees, and soil in fields and open woods. Widely distributed. Adams Co.: Beaver Pond. Brown Co.: Quinn School near Vera Cruz.

Cladonia cristatella f. *Beauvoisii* (Del.) Vainio. Adams Co.: Beaver Pond; Lynx; Mineral Springs. Brown Co.: Quinn School near Vera Cruz; Vera Cruz (Miss Braun).

Cladonia cristatella f. *vestita* Tuck. Adams Co.: Beaver Pond; Lynx; Mineral Springs. Brown Co.: Quinn School near Vera Cruz; Vera Cruz (Miss Braun).

Section 2. **Ochrophaeae**

Subsection 1. **Unciales**

Cladonia uncialis (L.) Web. On soil in open hillside woods. Rare. Clermont Co.: Nicholasville (Miss Braun).

Cladonia caroliniana (Schwein.) Tuck. On earth in open woods in hilly localities. Rare. The species is represented only by one form.

Cladonia caroliniana f. *dilatata* Evans. Adams Co.: Mineral Springs.

Subsection 2. **Chasmariae**

Group 1. **Microphyllae**

Cladonia furcata (Huds.) Schrad. On soil in fields and open woods, sometimes on rocks. The species and its forms are very common throughout the area. One variety and three forms have been collected. Brown Co.: Quinn School near Vera Cruz.

Cladonia furcata var. *racemosa* (Hoffm.) Floerke. Adams Co.: Beaver Pond; Mineral Springs; Lynx. Brown Co.: Quinn School near Vera Cruz. Clermont Co.: Milford.

Cladonia furcata var. *racemosa* f. *corymbosa* (Ach.) Vainio. Adams Co.: Bundle Run (Miss Braun); Mineral Springs; Lynx. Brown Co.: Quinn School near Vera Cruz; Vera Cruz (Miss Braun).

Cladonia furcata var. *racemosa* f. *squamulifera* Sandst. Adams Co.: Beaver Pond. Brown Co.: Quinn School near Vera Cruz; Vera Cruz (Miss Braun). Clermont Co.: Cabin Run (Miss Braun).

Cladonia squamosa (Scop.) Hoffm. On soil in open woods. The species is not abundant in the area. Clermont Co.: Nicholasville (Miss Braun).

Cladonia squamosa f. *levicorticata* Sandst. Adams Co.: Mineral Springs.

Cladonia delicata (Ehrh.) Floerke. On decayed oak stumps and logs. Common locally. The specimens all belong to one form.

Cladonia delicata f. *quercina* (Pers.) Vainio. Adams Co.: Beaver Pond; Mineral Springs.

Cladonia caespiticia (Pers.) Floerke. On soil, on banks, in fields, and in open woods. Not uncommon locally. Adams Co.: Beaver Pond; Mineral Springs.

Group 2. **Megaphyllae**

Cladonia apodocarpa Robbins. On earth in abandoned fields. Frequent. Adams Co.: Beaver Pond; Lynx. Brown Co.: Quinn School near Vera Cruz.

Subsection 3. **Clausae**

Group 1. **Podostelides**

Cladonia mitrula Tuck. On soil in fields and on banks, sometimes over tree roots. Very common. Our specimens represent two forms.

Cladonia mitrula f. *imbricatula* (Nyl.) Vainio. Adams Co.: Beaver Pond; Lynx. Clermont Co.: Bethel (Twichel); near Nicholasville.

Cladonia mitrula f. *pallida* Robbins. Brown Co.: Vera Cruz (Miss Braun).

Cladonia clavulifera Vainio. On earth in abandoned fields. Not common. Brown Co.: Quinn School near Vera Cruz. Determined by Dr. Sandstede. Clermont Co.: Nicholasville (Miss Braun).

Cladonia clavulifera f. *nudicaulis* Evans. Brown Co.: Quinn School near Vera Cruz.

Cladonia subcariosa Nyl. On earth in fields, on roadside banks, and in open woods. Very abundant. Adams Co.: Beaver Pond. Clermont Co.: Nicholasville (Miss Braun).

Cladonia subcariosa f. *evoluta* Vainio. Adams Co.: Beaver Pond. Brown Co.: Quinn School near Vera Cruz (Miss Braun).

Cladonia subcariosa f. *squamulosa* Robbins. Adams Co.: Beaver Pond. Brown Co.: Quinn School near Vera Cruz; Vera Cruz (Miss Braun).

Cladonia brevis Sandst. On soil bank. The specimen is represented by *thallus* only. It was determined by Dr. Sandstede. Adams Co.: Beaver Pond.

Group 2. **Thallostelides**

Cladonia gracilis (L.) Willd. The species is rare in this region and is represented only by a variety and a form.

Cladonia gracilis var. *dilatata* (Hoffm.) Vainio. Brown Co.: Quinn School near Vera Cruz.

Cladonia gracilis var. *dilatata* f. *dilacerata* (Floerke) Vainio. Adams Co.: Beaver Pond.

Cladonia verticillata (Hoffm.) Schaer. On soil on banks and in fields. Very abundant. Brown Co.: Quinn School near Vera Cruz.

Cladonia verticillata f. *apoticta* (Ach.) Vainio. Adams Co.: Beaver Pond. Brown Co.: Vera Cruz (Miss Braun). Clermont Co.: Nicholasville (Miss Braun).

Cladonia verticillata f. *evoluta* (Th. Fr.) Stein. Adams Co.: Beaver Pond; Lynx. Brown Co.: Quinn School near Vera Cruz; Vera Cruz (Miss Braun). Clermont Co.: Bethel (Twichel).

Cladonia verticillata f. *phyllocephala* (Flot.) Oliv. Adams Co.: Beaver Pond; Lynx. Brown Co.: Vera Cruz (Miss Braun).

Cladonia pyxidata (L.) Hoffm. On soil, hillside under red cedar. Rare. The species is represented by one variety.

Cladonia pyxidata var. *neglecta* (Floerke) Mass. Clermont Co.: Nicholasville (Miss Braun).

Cladonia chlorophaea (Floerke) Spreng. On soil in fields, open woods, and banks, sometimes on the bases of trees. Common. Brown Co.: Quinn School near Vera Cruz.

Cladonia chlorophaea var. *intermedia* Sandst. Adams Co.: Lynx. The specimen was determined by Dr. Sandstede.

Cladonia grayi Merrill. On soil in fields and open woods. Frequent. Most of the specimens have been verified by Dr. Sandstede. Adams Co.: Mineral Springs; Lynx. Brown Co.: Vera Cruz (Miss Braun). Clermont Co.: Nicholasville (Miss Braun).

Cladonia fimbriata (L.) Fr. On soil in abandoned field. Rare. Brown Co.: Quinn School near Vera Cruz.

Cladonia nemoxya (Ach.) Nyl. On soil in abandoned field. Rare. Dr. Sandstede has given a provisional name *C. subnemoxya* to all those forms originally included in *C. nemoxya* which show a negative reaction with paraphenylendiamin. This negative reaction is characteristic of our specimen. The restricted *C. nemoxya* always gives a positive reaction. Dr. Evans says that apparently the latter is much more common in North America. Brown Co.: Quinn School near Vera Cruz.

Cladonia coniocraea (Floerke) Spreng. On soil in fields and open woods. Common. Adams Co.: Mineral Springs; Beaver Pond.

Cladonia coniocrea f. *ceratodes* (Floerke) Dalla Torre & Sarnth. Adams Co.: Beaver Pond; Lynx; Mineral Springs. Brown Co.: Vera Cruz (Miss Braun). Some of the specimens have been examined by Dr. Sandstede.

Cladonia coniocrea f. *robustior* (Harm.) Sandst. Adams Co.: Beaver Pond; Mineral Springs. Both of these determinations were verified by Dr. Sandstede.

Cladonia coniocrea f. *truncata* (Floerke) Dalla Torre & Sarnth. Adams Co.: Beaver Pond; Mineral Springs; Lynx. Brown Co.: Vera Cruz (Miss Braun).

Cladonia borbonica (Del.) Nyl. On logs, soil banks and thin soil over rocks. Frequent. Brown Co.: Quinn School near Vera Cruz.

Cladonia borbonica f. *cylindrica* Evans. Adams Co.: Beaver Pond. Brown Co.: Quinn School near Vera Cruz; Vera Cruz (Miss Braun). Clermont Co.: Branch Hill (Cooke); Milford.

Cladonia pityrea (Floerke) Fr. On soil and old wood. Not common. The species is represented by one variation.

Cladonia pityrea var. *Zwackhii* f. *subacuta* Vainio. Adams Co.: Mineral Springs. Brown Co.: Vera Cruz (Miss Braun).

Group 5. **Foliosae**

Cladonia strepsilis (Ach.) Vainio. On soil in fields and open woods. Frequent. Brown Co.: Quinn School near Vera Cruz.

Cladonia strepsilis f. *coralloidea* (Ach.) Vainio. Adams Co.: Beaver Pond (Fahnestock). Brown Co.: Quinn School near Vera Cruz.

Group 4. **Ochroleucae**

Cladonia piedmontensis Merrill. On soil in fields and open woods. Frequent. The species is represented locally by three forms.

Cladonia piedmontensis f. *lepidifera* (Vainio) Robbins. Brown Co.: Quinn School near Vera Cruz. Clermont Co.: Nicholville (Miss Braun).

Cladonia piedmontensis f. *squamulosa* Robbins. Adams Co.: Beaver Pond. Brown Co.: Vera Cruz (Miss Braun).

Cladonia piedmontensis f. *squamosissima* Robbins. Brown Co.: Vera Cruz (Miss Braun).
